The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (currently amended) A method of reducing artifacts in steady state free precession (SSFP) signals for use in magnetic resonance imaging comprising the steps of:

   a)   applying a plurality of SSFP imaging sequences to an object to be imaged,

   b)   acquiring image data for each of the SSFP imaging sequences,

   c)   weighting the image data to emphasize higher **magnitude** signals,

   d)   combining the weighted image data **from all imaging sequences**, and

   e)   establishing an image signal based on the combined weighted image data.

2.   (original) The method as defined by claim 1 wherein the plurality of SSFP imaging sequences are phase-cycled.

3.   (currently amended) ~~The method as defined by claim 2 wherein step c) squares the image data for each sequence, and step d) sums the squares of the image data~~ **A method of reducing artifacts in steady state free precession (SSFP) signals for use in magnetic resonance imaging comprising the steps of:**

   a)   applying a plurality phase-cycled of SSFP imaging sequences to an object to be imaged,

   b)   acquiring image data for each of the SSFP imaging sequences,

   c)   weighting by squaring the image data for each sequence to emphasize higher signals,

   d)   combining by summing the weighted image data, and

   e)   establishing an image signal based on the combined weighted image data.

4.   (original) The method as defined by claim 3 wherein step e) establishes an image signal from the square root of the sum of the squares of the image data.

5.   (currently amended) ~~The method as defined by claim 2 wherein step c)~~ ~~weights the image data~~ A method of reducing artifacts in steady state free precession (SSFP) signals for use in magnetic resonance imaging comprising the steps of:

a)   applying a plurality of phase-cycled of SSFP imaging sequences to an object to be imaged,

b)   acquiring image data for each of the SSFP imaging sequences,

c)   weighting the image data to emphasize higher signals based on a computed off-resonance profile using a magnetic field map for the imaged object,

d)   combining the weighted image data, and

e)   establishing an image signal based on the combined weighted image data.

6.   (currently amended) ~~The method as defined by claim 2~~ A method of reducing artifacts in steady state free precession (SSFP) signals for use in magnetic resonance imaging comprising the steps of:

a)   applying a plurality phase-cycled of SSFP imaging sequences to an object to be imaged,

b)   acquiring image data for each of the SSFP imaging sequences wherein N phase-cycled individual SSFP image acquisitions are performed with the nth acquisition incrementing the phase from excitation to excitation by

$\Delta\phi = 2\pi n/N,$

c)   weighting the image data to emphasize higher signals,

d)   combining the weighted image data, and

e)   establishing an image signal based on the combined weighted image data.

7.   (original) The method as defined by claim 6 wherein step c) squares the image data for each sequence, and step d) sums the squares of the image data.

8.   (original) The method as defined claim 7 wherein step e) establishes an image signal from the square root of the sum of the squares of the image data.

9.   (original) The method as defined by claim 8 wherein the SSFP image data is two-dimensional.

10.   (original) The method as defined by claim 8 wherein the SSFP image data is three-dimensional.

11.   (currently amended) The method as defined by claim [[1]] 13 wherein the SSFP image data is two-dimensional.

12.   (currently amended) The method as defined by claim [[1]] 13 wherein the SSFP image data is three-dimensional.

13.   ~~The method as defined by claim 1~~ A method of reducing artifacts in steady state free precession (SSFP) signals for use in magnetic resonance imaging comprising the steps of:

a)   applying a plurality of SSFP imaging sequences to an object to be imaged, wherein each SSFP imaging sequence includes:

i)   placing a body in a magnetic field,

ii)   applying gradient magnetic fields to the body,

iii)   applying a plurality of RF excitation pulses to the body at repetition time, TR, to flip nuclei spins, with RF phase incremental from TR to TR by a phase increment, $\Delta\phi$

iv)   rewinding all gradients over each repetition time, TR,

v)   measuring refocused MRI signals at echo times, TE during each sequence, and

vi)   repeating steps ii-v) for subsequent sequences with the RF excitation pulses in each sequence being incremented in phase by a different $\Delta\phi$,

b)   acquiring image data for each of the SSFP imaging sequences,

c)   weighting the image data to emphasize higher signals,

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d)   **combining the weighted image data, and**

e)   **establishing an image signal based on the combined weighted image data**.